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Open Collective Memory Systems

During the late 1960s, as networks of alternative human service agencies and groups working for social change developed in America, three levels of information-processing need became apparent.

In dealing with staff, clients, and community, a typical organization needed easily-accessible and continuously-updated information about a great variety of persons, activities, informational and other resources, etc. Within each network of groups of some particular sort, the same need was experienced; often the network's evolution depended vitally upon its satisfying this need, as did the local work of each group. Finally, as networks multiplied and their works developed, the same need appeared among them as a collectivity: how could the whole be accessed to itself?

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Primitive answers to these needs appeared in the filing-systems of local agencies, in networking newsletters, and in such ventures of inter-network accessing as the many Peoples' Yellow Pages. But other answers were being explored. In 1971, Project One, the first modern "warehouse community," came together in San Francisco. In its huge, converted warehouse, fifty groups, covering the change-spectrum from prison reform, to community media, to artists and video-freaks, to a free school, to legal aid, were hived together, bringing the many currents of information and work they represented into an intense interplay. It was a partial answer to the problem and potential of accessing the whole to itself, but promising enough so that the warehouse community form was explored in many cities through the mid-1970s.

It was fitting, then, that in the very basement of Project One, a small group of technological visionaries were at work on tools which promised new powers to meet such informational needs (and quite a variety of others). The men and women of Resource One were no razzle-dazzle crew, but a bunch of pragmatic kids at play with a cumbersome, antiquated XDS-940 computer scrounged from a friendly corporation. Intent on turning cybernetic technology to direct community service and guided by clear political insights rare in the cybernetic field, by 1974 they had developed a system called Community Memory, as remarkable and luminous in its implications as it was simple and funky in its first field test.

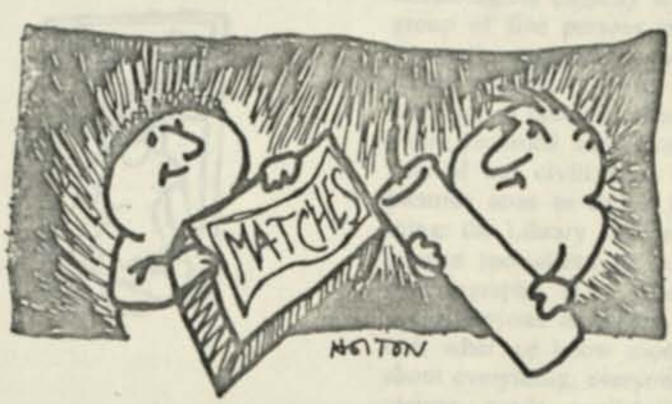
Like any tool, computers are no wiser than their users' intentions, and we have hardly begun to explore what uses we might make of them. Most people's experience with them is still limited to having had information about themselves or their activities processed by higher authorities. It takes a leap of imagination for a small service-agency or change-group even to grasp that the information-processing power so recently employed only at high cost by governmental agencies, retail chains, etc., has quite suddenly become accessible, in compact and relatively cheap form, and might be used to better handle many of its routine needs, from file storage and resource library to addressing mailings.

But the uses of Community Memory proved to be of a higher, more social nature, evident even in the first, elemental experiment. To the central processor ("computer") in Resource One, phone lines connected three peripheral terminals placed in public locations (stores, a library). The terminals included a keyboard and a print-out, which anyone could use to enter information into or retrieve from a common data base. At first attendants helped people to become familiar with the system. Soon this function was taken over by the local communities of users, and by the system's own instructional programs. What may well have been the world's first prototype of a free-standing public information utility went into operation for a year.

One dimension of cybernetic systems is their hardware; recent advances have made available cheap, dependable, "smart" peripheral equipment which make more extensive, "networked" versions of Community Memory radically more practical. But the heart of any system is its software, and Community Memory's programming made it much more than the computerized bulletin-board that its funky data-base made it seem at first glance. Community Memory's program was interactional. It welcomed the user, helped teach her or him how to use the physical equipment, how to search for data, how to enter it. In particular, Community Memory was programmed to allow and to teach the user to create the very categories by which information was ordered, stored, and made visible (accessible) to other users. This principle was essential to the political character of Community Memory, making it a fully free and democratic utility.

Though the first field trial of Community Memory was tiny, serving at most 150 users a day, the simplest sorts of uses that larger open public information systems can serve were evident from the beginning. Goods, services and other resources were offered for sale or exchange, in a medium more flexible and immediate than the newspaper want-ads. But a truly open system holds richer possibilities. Musicians looking for practice-partners or others to form groups found each other, ride-pools and study-groups organized themselves. Poems and political sermons were entered in the data-pool, with new categories announced for those who wished to pursue them. Commentaries on these and commentaries on commentaries began to accumulate and be read and shared-in by special audiences. All of this in a public, self-organized and freely evolving version of the nominally more sophisticated experiments in computer teleconferencing on specific topics being then undertaken by various governmental and private agencies.

Every cybernetic system has a political character, not merely in the uses to which it is put but intrinsic in the very hardware and software which enable its uses. Computers of yore were massive, expensive, usable only by large, high-budget (bureaucratic) agencies with battalions of specialized technicians. Quite suddenly this condition has reversed, computer power becoming rapidly public. But the science-and-art of programming as developed in conjunction with the early hardware and uses, remains unchanged in its political character and still dominates the scene. The programs most people encounter (even in TV game sets, let alone in commercial or governmental hands) lead them through pre-determined routines or deliver pre-packaged data, originated or otherwise controlled by central sources or powers. In general they have no control over the way data from or about them are acquired and used, nor any way to alter or enrich the very programs themselves. In all this, several species of powerlessness are perpetuated; such programming is perhaps most useful as a tool reinforcing authoritarian systems, unless it is balanced with programming of a different sort.



By contrast, the programming of Community Memory was radically free and radically interactional. Future public memory systems may well be "convivial" in the fullest sense, teaching their users to maintain and repair them, and offering further human and other resources for this through their data-banks, But Community Memory's social/political character was evident in the trial run. It was a fully democratic, fully decentralized information system. Power to put information in public reach and to draw on information was available to anyone, regardless of their financial, organizational or social status. No central authority provided the information, edited it, censored it, determined who could know what, or certified what was true. *No central authority or agency mediated people's direct communication and transactions with each other.*

To put it so is to say that fully open information systems are potent tools of anarchy — not of mindless muddle, but of delicate and complex self-organizing processes which might quite transform society. The alternative is familiar in all our past experiences with "broadcast" media, electronic and other. Through books, journalism, radio, TV, school, messages are broadcast from a few to many; most citizens without special means cannot make any information or message, besides a want-ad, visible to many others. Information is power, and the distribution of "broadcast power" has pretty much followed the distribution of economic/political power in our society; what may be said in public is always subject to strong constraints, even in left-wing journals. All this is not simply *pro-forma* authoritarian stuff; it is also the very glue that holds our present culture together. Should we come to depend significantly on communications media which enable people to make directly accessible to each other the full range of what they have to communicate, freely and democratically, to broad publics and to quite specialized "minipublics" and self-organizing groups — we should expect many of our political, educational, cultural, etc. processes to be quite transformed.

This is putting the prospect at its grandest. But the pressure, the desire for direct, unmediated intercourse is a potent force in our society now. Such "grassroots" phenomena as yard-sales and fleamarket papers, "food conspiracies," the sexual want-ads, community learning-exchanges and free universities, the "encounter" movement, neighborhood clinics and citizen political participation testify to it in various ways — boding a transformation deeper and more complex than the participatory democracy which is its political face. Meanwhile, were adequately open terminals made available in each small neighborhood of a city, all the (non-contact) informational transactions of each of the nine activities above — not to mention car pools, child-care connections, service exchanges, housing and jobs, the rest of the classified section, and lord knows what else — could proceed much more effectively and directly. Even this alone would justify the project, given that the price for such a generally-accessible public information utility would be on the order of $100 per citizen to establish, and $30/person annually thereafter.

The more profound and transformative uses of such a utility are too rich to explore properly here. I have sketched scenarios for (electoral) politics and for education elsewhere.*

Another example unfolds as we consider the regulation of the human services. At present providers of education, therapy, medicine, social and legal services, etc., are largely certified and regulated by interlocks of centralized governmental and proprietary-professional agencies. The intent is to protect the consumer and make practices effective. The result, as this century's history of health shows most clearly, in America is as much to define and guarantee monopolies of narrow practice that benefit special classes, inhibit free development and progress, and serve consumers at times injuriously.

But the ultimate judgement of a practitioner's practice lies not with the state, nor with a jury of professional peers alone, but rather first and mainly in the flesh of life, in the actual experience of the particular people he or she affects. For each teacher, doctor, plumber, whatnot, a rich "file" of information on and evaluation of his or her practice exists in the community — scattered in privatized experience, at present no more methodically accessible than your friend's advice about her wonderful yoga teacher. Yet the same technology that can make it easier to locate a compatible teacher (or to be your own) can serve as readily to record your evaluation of his or her teaching, making it as accessible as the Teachers' Association evaluation for other prospective students to consider. This technology could record and index, for the benefit of others, your summary of the many individual opinions about another teacher; and to record his or her rebuttal of some vicious negative opinion. (Such information processes have in fact been explored most clearly so far, in the human services, through projects in course/teacher evaluation, which have proven responsible and useful, and suggest models for analogous consumer empowerment in other services.)

A public information utility used methodically in this fashion would quite transform the modes of regulation of human service practices, as well as the modes of consumer information, choice and interaction, and consumer/practitioner relationship.*

Of course anarchy is also chaos; in an open, unregulated information system (as in any other) the problem of wrong, misleading and malicious information arises. The yoga teacher or political candidate with his or her public file swollen with lying pseudononymous tales by a jealous competitor is only the first spectre to by now remarked upon so often and to so little effect that it is hard to recognize how fast they are coming about.

suggest that a public information utility might equally portend prodigious possibilities of misuse. But so it is for every tool, the ill potential in proportion to the good; in this case it is fairer to recognize this "power to the people" brand of cybernetics, even with its darker potentials, as a counterpoise to the still overwhelmingly dominant modes of cybernetic employment, whose totalitarian potentials for invasions of privacy and control of the citizenry by the State have been

All this is not to dodge the question of poison (mis-information, etc.) in the data-pool. The issue is of how (or whether) a self-organizing system can keep itself healthy; it is the issue of democratic society, for which democratic information-systems are a fundamental tool. In the case of a genuinely open public information utility, new customs and perhaps sanctions for making information responsible would need to develop. Present laws governing communication would need transformation to accommodate radically expanded communicative facilities and processes. The issues involved are profound. Models are being proposed, (they have their flaws), and discussion continues in specialized journals. The point here is that these issues are no more profound, nor less, than the positive and transformative potentials which open through these technologies.

Indeed even the more modest explorations of collective memories mentioned below should be understood now in this fuller context. We have presently the technological capacity to place, in each group of five persons in America, one terminal connecting them not only with all the mundanely useful or controversial information sketched above, but with the entire recorded and recordable information of our civilization (in print, with pictures soon to follow.) That's everything: the Library of Congress, 100,000 current specialized journals, everyone's autobiography, every aspect of the day's doings anyone anywhere sees fit to record, what we know about the past and about everything, everyone's dreams and visions, needs, availabilities. Nor does this static description begin to convey the expanded possibilities of social interaction which open through such a system.

We essentially have the hardware capability already. The initial programming of the system, to make its universe of in-fed information usefully accessible to the citizenry's further self-organizing activities, could likely be developed to this scale of complexity while hardware production geared up, were imagination and resources turned to the task — to judge by the achievements of the few workers in the field so far. The bill for America,

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*In "Technology and Social Reconstruction," in *Ecology: Crisis and New Vision*, (Sherrill, ed.; John Knox Press, 1974) and in my book *On Learning and Social Change* (Random House, 1972), and in *EDUTOPIA*, excerpted in *Schoolworlds '76* (Bigelow, ed.; McCutchan Publishing Co., Berkeley, 1976.)

*Another aspect of such a participant-democratic information system has been modeled in a primitive way already through the magazine *Prevention*. High feedback participation among its million readers has enabled it in effect to conduct large-scale empirical research into certain nutritional, medical, etc. questions, collectively through its constituency, at times directly in response to their interests, and feed back the summarized reports. A public information utility would make such processes radically more efficient and practical, and decentralize the power to initiate them.

f.o.b. five years from now, would be approximately half a year's military budget to put the entire system in operation on a national scale, and perhaps a quarter as much annually thereafter.

That's all it would cost, folks; it's surely the greatest technological bargain of our time. We have the capacity, the empty tool, within our grasp. This potential is an historical event of the deepest order come upon us quite suddenly — no more than dreamed of when I was a boy, made real only this year. The technology, the abstract but quite real capability, are here before we have even begun to grasp what they mean and what we might use them for, beyond doing our customary things more effectively. Yet what Radio Shack's 4,000 outlets are now so cheerily pushing, with their $599 personal computer special, is not only the usual blind wheel of (private) corporate profit, but the tools which, wisely used, could enable a radical step in the collectivization of consciousness and the democratization of relationships — both being key processes of human (cultural) evolution, which a full community memory would extend.

Of course our main problems have less to do with lack of information than with not knowing what information to use or how to use it. No machines will get us wisdom, though they may facilitate our contact with wise advisors. For many, adrift or swamped in information overload, the prospect of access to more seems numbing. But we do depend on data, and might as well manage it with good tools. With or without the grandiose context above, any network of community groups that deals with much information and depends on communicative interactions has reason now to be interested in creating its own smaller open collective memory, until a public one comes along to use.

Readers interested in network theory may appreciate the potency of a tool — a network of "smart" terminals — that is isomorphic to the system it serves, and the observation that a network of change-agents/agencies is in effect a decentralized conversation of self-directed learners, which profits by facilitation with appropriate tools. Indeed we should expect a network's use of a communal memory to further decentralize it (as well as bring its many elements into "closer" interplay), since many of the administrative and communicative functions which lead networks to have centers could be handled through whole-network processes.

As for the practical uses to which a network of groups — like the more than forty diverse service agencies of the San Diego Community Congress, or the scattered neighborhood health clinics of a city, or the widely-dispersed headquarters of ecological activist alliances — might put their own collective memory, these begin with the collectivization of the routine "in-house" uses to which individual groups can put their own small computers. The virtues of uniform, efficient accounting and payroll programs, of well-ordered and continually-updateable data inventories, apply to change-agencies as much as to big business. The mailing-lists, funding sources, rosters of people with special skills, flow-charts of where to refer whom for what, lists of other agencies and their activities, and other routine masses of data on which operations depend can be more effectively organized with computer systems.

But the fuller force of even this routine reorganization appears only as the memories of individual groups are linked into a common memory and utility. Whole-network coordination of bookkeeping and fundraising efforts becomes possible, without loss of "local" control; sub-networks gain access to easy sharing and summary of data for collective projects. Having a shared bank of information and resources to draw on does more than simply greatly extend the resources known to any single group. It relieves each group of the constant necessity to be tracking down information, people, etc., already known elsewhere, and frees it to more effectively maintain and develop its own unduplicated contributions to the common memory. A real-time, collectively-maintained network "calendar" becomes possible, announcing (with cues to the appropriate audiences) not only all scheduled events of interest within the network — each group's doings, meetings large and small, special events, days to file for IRS status — but the running status of such works-in-progress as legislative bills, negotiations with civic agencies, and court cases and their implications, as well as bulletins of any sort.

All this is only the simplest, most rudimentary form of collective empowerment through well-organized sharing of information that a live-time collective memory makes possible for a network of groups. It is similar enough to the uses of computer-networks by retail chains, law enforcement agencies, etc., to perhaps raise confusion about its political character. But the tool itself is neutral, and can as well be used for one purpose as another. The ability to keep track of a whole system's interaction patterns is no less valuable to a network of health clinics concerned with epidemiology and assessment of service-needs and impacts than it is to the telephone company, and the luxuries of computer teleconferencing which RAND *et. al.* are exploring now can as well be used by a network of appropriate technology groups discussing the applications of a new solar cell for months, or by a network of social action groups coordinating strategy and demands during an intense week, in a continental discussion on view everywhere.

Yet a truly open memory system makes possible much deeper forms of collective empowerment than the examples so far suggest. Their key is the political character of the system's program. It is necessary to state the principle firmly, both to clarify the confusion above and to enable us to distinguish the other sorts of collective memory-systems which networks might explore from true Community Memories, fully open as democratic information systems. The principle is that any member of the community is free to contribute and draw upon information, and free to name, describe and address it as s/he will.* This principle seems quite natural and unremarkable when we think of a network of groups in cooperation, or a good conversation. Its political force, and the socially-solvent character of open memory systems, become clearer when

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*And, more fully, free also to enter new sub-programs in the system's programming. The ways in which information can be responsibly erased from a community memory are too complex to discuss here.

we consider their application first within individual groups, and then as interfacing tools between groups and their social environments.

If access to terminal(s) is adequate, the "internal" uses to which a single group or organization can put a memory program are limited mainly by how much information its members are willing to share freely, and by how intensely they pursue their "information processing" through it. In a clinic, diagnostic and treatment procedures could be made as accessible to nurses and paramedics as to doctors. All the administrative functions of a community education exchange could be handled through teachers and learners actively using such a program. Its use by a traditional college would shrivel the administrative structure to reasonable scale. Were more information about how-to-do and who-to-see-for-what freely available, almost any organization would become more democractic, and more fully a collective endeavor, since it is precisely the limited access to and control of such routine vital data which establishes much of the typically-hierarchical power structure of even good-willed organizations. In such ways, by democratizing information, truly open systems tend to dissolve customary social distinctions and certain conditions of authority, opening the way to their self-organizing reconstitution. The prospects of truer collectivity appear most dramatically, for individual groups, in their governance, their ways of making decisions. For example, full access to details about the budget's planning and current negotiations with the city over job cutbacks is available to each staff member, and if the agency's memory itself has served as the running, open forum of debate and strategy, the staff that meets together may be more prepared and inclined to reach collective consensus.

All these examples of "democratizing empowerment" apply as well to networks of groups as to groups. But the most exciting and uncertain potentials of such open memory systems lie not even in such "in-house" uses, but rather in their employment *as public utilities* to interface groups and networks with the fuller communities whom their practices involve. The neighborhood clinic might well use its terminals to make the doctors' knowledge available not only to the nurse but to the "patient, and use them in more ways besides to become a resource and encouragement for his or her own self-directed treatment and learning about health. Were its terminals fully open, they might well accumulate well-indexed nutritional information from a community more interested in this subject than the clinic's doctors, of interest to health-seekers and medics alike. The open terminals of a school or learning-exchange would accumulate evaluations of specific teachers and courses, to guide both student and teacher and whoever holds the purse-strings, and evaluations of the student's work by non-school sources chosen by the student, equal with the school's judgment and his/her own account. In a fuller system open to conversation the distinctions among "teacher" and "student" would quite dissolve as ideas and positions were debated in an anarchic community of learning.

Similar possibilities appear for almost any other social service or change group/network. Creative use of an open memory in the larger community can help to dissolve the distinction between the informed/qualified specialist and the helpless, dumb layperson, the activist and the audience. It can open the categories of information-providers, and transform the group's (network's) function to being the facilitator of a community learning process. As a fully-public forum for feedback and judgments by the whole community affected, it offers a more direct and radical accountability than service agencies are accustomed to facing, and both encourages and facilitates detailed client-responsiveness, as well as participation by the affected community in the decision-making of the organization itself. In all such ways and more, the active use of open memory systems in public interface promises to be, quite in itself, socially transformational.

All this is speculation, but scarcely science-fiction, being barely in advance of its time. The original Community Memory experiment was dismantled at the end of 1974. Even as its designers retired to develop hardware and software more suited to the task, other groups in Vancouver, Boston, New Hampshire were organizing field-tests of kindred computer-networking systems (though perhaps none so purely insistent on the full freedom of a public information utility). It is likely that the first use of a collective computerized memory by a network of community-based human service agencies of social action groups will occur by 1980. "Community Memory" is now a trademark of the Community Memory Project which is continuing to develop a new version of the computerized community information exchange. The Community Memory Project anticipates that one node (ten to twenty terminals plus a central computer) will be running as a public utility in a local neighborhood in a S.F. bay area community in 1979.* Should it seem promising, many more will follow in short order, for the technology will be widely available.

Many different ways of programming network, internal, and public-interface uses will be explored. Most will be organized as less-than-fully-open systems, less to avoid the positively subversive potentials of open systems than to avoid all the "negative" problems of mis-information, accountability, etc., with which any open system must deal. Yet these problems must be embraced, as part of pursuing those potentials. The truth is that no one knows what we might do with the new tools we have developed; the powers and dangers they offer remain to be explored. Each network that experiments with collective memory, each commercial information utility designed by Bell Telephone or IBM, faces a choice: to perpetuate the social forms and political culture of the past by re-creating media in which the power to receive, provide and control information and communication is hierarchical, or to enable the exploration of new forms and ways, through democratizing this power.

Of all groups in our society, networks concerned with democratic participation and social transformation ought perhaps to be the most senstive about the political character of the collective memory programs they (and other elements of society) will use. It is not too early — indeed, it may already be too late — to insist that any system described as a "community memory" or "public information utility" embody, for the community of its users, the full principles of open access and unmediated interaction that marked the original Community Memory experiment, for the sake of the democratizing potentials that they open.

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